

CLAIMS

- 5 1. Infrared drier installation (1) for a passing web (2), which installation (1) has gas-heated infrared radiant elements (5), arranged one next to the other so as to form a unit (4), said unit comprising at least two adjacent rows (8) of gas-heated infrared radiant elements (5) stretching out in the transversal (9) direction of the web (2) substantially over the entire width of the web (2), said infrared drier
- 10 installation comprises means to recycle, at least partially, the said combustion gases, characterized in that said infrared drier comprises means (16) to avoid the suction of cold air between two adjacent rows of radiant elements (5).
- 15 2. Drier installation according to claim 1, wherein said means (16) to avoid the suction of cold air between two adjacent rows of radiant elements (5) is a sealing gasket.
- 20 3. Drier installation according to any one of the claims 1 or 2, wherein said drier installation comprises devices that form an insulating thermal arc (17) stretching out to the neighbourhood of the backside (11) of the radiant elements (5).
- 25 4. Drier installation according to claim 3, wherein said means that form an insulating thermal arc (17) have peripheral walls (18, 19, 20) stretching out to the neighbourhood of the web (2), at least along the lateral edges (21, 22) and the upstream transversal edge (23) of the set (4) of radiant elements (5).

5. Drier installation according to any one of the preceding claims, wherein each radiant element (5) has first detachable connecting devices (29) adapted to cooperate with second detachable complementary connecting devices (30) coupled by at least one fixed pipe (31) supplying gas, combustion air or a mixture of gas and air; the first and second detachable connection devices (29, 30), said detachable connection are for part of a quick connect coupling.
6. Drier installation according to claim 5, wherein the first and the second connection devices (29, 30) are designed so as to oppose a preset maximal resistance and to yield, in a reproducible way, to a load force that exceeds this maximal resistance.
7. Drier installation according to any one of the claims 5 or 6, wherein said drier installation has for each row (8) of radiant elements (5) a corresponding gas tube (6), which has, for each radiant element (5), a fixed pipe (31) that supplies gas to the said radiant element (5), and wherein each radiant element (5) has on its backside (11) a back tubing (28) supplying a mixture of air and gas that is adapted to be directly coupled in a detachable and tight way with the corresponding fixed gas pipe (31), in which the fixed pipe (31) or the back tubing (28) has an air inlet opening (32) that communicates with the air tube (7) to form the mixture of air and gas.
8. Drier installation according to claim 7, wherein for each row (8) of radiant elements (5), a combustion air supply tube (7) placed between the radiant elements (5) and the corresponding gas tube (6), and by the fact that for each radiant element (5), the combustion air tube (7) has opposite openings (33, 34) respectively made in two

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- 5 opposite regions (35, 36) of the wall (37) of the air tube (7), a first opening (33) that is made in a first region (35) adjacent to the radiant element (5), and a second opening (34) that is made in a second region (36) adjacent to the gas tube (6), and by the fact that through each of the openings (33, 34) passes the corresponding fixed pipe (31) or the corresponding back tubing (28).
- 10 9. Drier installation according to claim 8, wherein for each radiant element (5), the corresponding fixed pipe (31) passes in a tight way through the second opening (34) made in the second region (36) of the wall (37) of the combustion air tube (7) adjacent to the said gas tube (6), and characterized by the fact that the corresponding back tubing (28) supplying the mixture of air and gas passes through the
- 15 first opening (33) made in the first region (35) of the wall (37) of the air tube (7) adjacent to the said radiant element (5) and has the air inlet opening (32) that ends inside the air tube (7) to form the mixture of air and gas.
- 20 10. Drier installation according to claim 9, wherein the back tubing (28) of each radiant element (5) has at its front end (78) an organ (79) constituting the gas injector connected to the back tubing (28).
- 25 11. Drier installation according to any one of the preceding claims, wherein said drier installation has first collection devices (38) to collect downstream the radiant elements (5) at least a part of the warm combustion gases produced by the said radiant elements (5), and first blowing devices (39) to blow on the passing web (2), downstream the first collection devices (38), a gaseous mixture that is warmed up by these warm gases.

12. Drier installation according to claim 11, wherein said drier installation has several ventilators (42), arranged according to a row stretching out in the transversal direction (9) of the passing web (2), in which
5 each ventilator (42) is connected to collection hoods (43) and to blowing hoods (44), respectively covering a part of the width of the passing web (2).
13. Drier installation according to claim 1, wherein each ventilator is
10 situated above the said collection and blowing hoods (43, 44), adjacent to the corresponding radiant elements (5), in relation to the said hoods (43, 44).
14. Drier installation according to any one of the claims 11 to 13,
15 wherein an insulating thermal arc (45) is located between the radiant elements (5) and the first (38) combustion gas collection means.
15. Drier installation according to any one of the preceding claims,
20 wherein each radiant element comprise a locking device to lock said radiant element (5) in its working position.
16. Drier installation according to any one of the preceding claims,
25 wherein each radiant element (5) comprise means to insulate the warm combustion gases from the backside (11) of the said radiant element (5).
17. Drier installation according to any one of the claims 3 to 15 wherein each radiant element (5) is enveloped in a peripheral jacket (50) stretching out from the front side (10) of the said radiant element (5)

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towards the back to the surface (51) of the insulating thermal arc (17) facing the passing web (2).

- 5 18. Drier installation according to any one of the preceding claims, wherein each radiant element (5), or the peripheral jacket (50) enveloping each radiant element (5), at least has one bulge (52) adapted to rest on an adjacent radiant element (5), or on an adjacent peripheral jacket (60), to avoid all possibilities of pivoting of the radiant element (5) around the axis (53) of the fixed pipe (31).
- 10 19. Drier installation according to any one of the preceding claims, wherein said drier installation comprises means to limit infiltration of cold air infiltration between the passing strip and the radiant elements.
- 15 20. Drier installation according to claim 19, wherein said means to limit infiltration of cold air infiltration between the passing strip and the radiant elements comprises a cold air blowing device installed upwards the first rows of radiant elements for blowing air slightly in a
- 20 direction opposite to the moving direction of the web.